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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Hiroya Inaoka

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EXAMINER

TAI, XIUYU

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

01/26/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/525,508	Applicant(s) INAOKA, HIROYA	
	Examiner Xiuyu Tai	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>12/17/2008</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/21/2008 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection necessitated by applicant's amendment.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1, 2, 6, 7, and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (JP2003-278539) in view of Tabata (JP2001-023666) and in evidence of Critoph et al (U.S. 5,845,507)..

6. Regarding claim 1, Miyamoto et al disclose a heat using system for a moving truck (paragraph [0041]). The system generates electricity from exhaust heat of a diesel engine 2 by a thermoelectric power generator 10 using an elevated-temperature side MHh and a low temperature side MHI (Drawing 1; ABSTRACT; paragraph [0031]). The system comprises: (1) a heat pump 20 for cooling the low-temperature side MHI to generate low temperature side (Drawing 3; paragraph [0031]); (2) a thermoelectric generation device 10 which has two different temperature sides of 10H and 10C (Drawing 2; paragraph 0027) to generate electricity based on a temperature gradient on the thermoelectrical module 10M (Drawing 2; paragraph [0030])

Miyamoto fails to teach the high temperature medium being an engine coolant. However, Tabata disclose a waste heat recovering device for a vehicle. The device of Tabata utilizes a radiator 92, a coolant path 94 and a cooling pump 93 to control the temperature of thermoelectric elements 95 and 96 (Drawing 1; ABSTRACT; paragraph [0054]). Tabata further indicates that temperature on the thermoelectric elements controlled by the cooling system is stable, hence promoting waste heat recovery (paragraph [0054]). Therefore, it would be obvious for one having ordinary skill in the art to utilize engine coolant as the high temperature side as suggested by Tabata in the device of Miyamoto in order to generate stable high temperature side for better heat recovery. Furthermore, one having ordinary skill in the art would have realized to chose

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proper heat pump in order to achieve low temperature side in the device of Miyamoto/Tabata to create temperature gradient on the thermoelectric unit for generating electricity. As a result, the device of Miyamoto/Tabata has a high temperature side using engine coolant while a heat pump is used to cool the low temperature side.

7. Regarding claim 2, a heat pump is known as an adsorption heat pump as is evident by the teaching of Critoph. Critoph teaches that the circulating fluid in an adsorptive heat pump is adsorbed and desorbed from an adsorbent (col. 1, line 12–13) Critoph further indicates that ammonia is conventionally used as an adsorbate (i.e. working medium) and an adsorbent bed of active carbon is used as the adsorbent (col. 4, line 40-43). The heat pump of Miyamoto/Tabata is fully capable of performing the claimed functions.

8. Regarding claim 6, Miyamoto teaches that a air conditioner 6 is connected to low temperature heat pump to cool a space and the heat pump 20 acts as a heat exchanger (Drawing 1; paragraph [0024] & [0025]), reads on the instant claim.

9. Regarding claim 7, the device of Miyamoto may include branching valves 103V and 104 V for regulating opening of heat source and heat sink in order to adjust electricity output and the operation of air conditioner 6 (Drawing 4; paragraph [0082] & [0083]), reads on the instant claim.

10. Regarding claim 9, Miyamoto also teaches that the electricity generated from the thermoelectric unit can be charged and stored in a battery (paragraph [0037]), reads on the instant claim.

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11. Claims 3-5, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyamoto et al (JP2003-278539) in view of Tabata (JP2001-023666) as applied to claim 2 above, and further in view of Bass (U.S. 6,272,873)

12. Regarding claim 3, Miyamoto/Tobata fails to teach a cooling system. However, Bass discloses a motor vehicle with a self-powered air conditioner system. The system of Bass includes an air conditioning cooling system 3, 4, 5, & 6 (Figure 1; col. 4, line 1-10) that cools and condenses ammonia. Therefore, it would be obvious for one having ordinary skill in the art to include a cooling system as suggested by Bass in order to cool the space via the air conditioning system of Bass while recovering waste heat from the device of Miyamoto/Tobata.

13. Regarding claim 4, the heat pump of Miyamoto/Tabata is fully capable of performing the claimed function of causing the adsorbent (i.e. active carbon) to adsorb the working medium (i.e. ammonia). Critoph teaches the same in details (col. 1, line 12 – 13).

14. Regarding claim 5, the system of Bass is for use with a refrigerant (i.e. ammonia) and air conditioner of Bass having a refrigerant circuit circulates the refrigerant (col. 2, line 20-25), and the air conditioning system of Bass is communicated with the heat pump of Miyamoto/Tobata, reads on the instant claim.

15. Regarding claim 8, the device of Miyamoto is installed within a moving truck (paragraph [0041]), reads on the instant claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiuyu Tai whose telephone number is 571-270-1855. The examiner can normally be reached on Monday - Friday, 7:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Alexa Neckel can be reached on 571-272-1446. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/X. T./
Examiner, Art Unit 1795

1/5/2009

/Alexa D. Neckel/
Supervisory Patent Examiner, Art Unit 1795